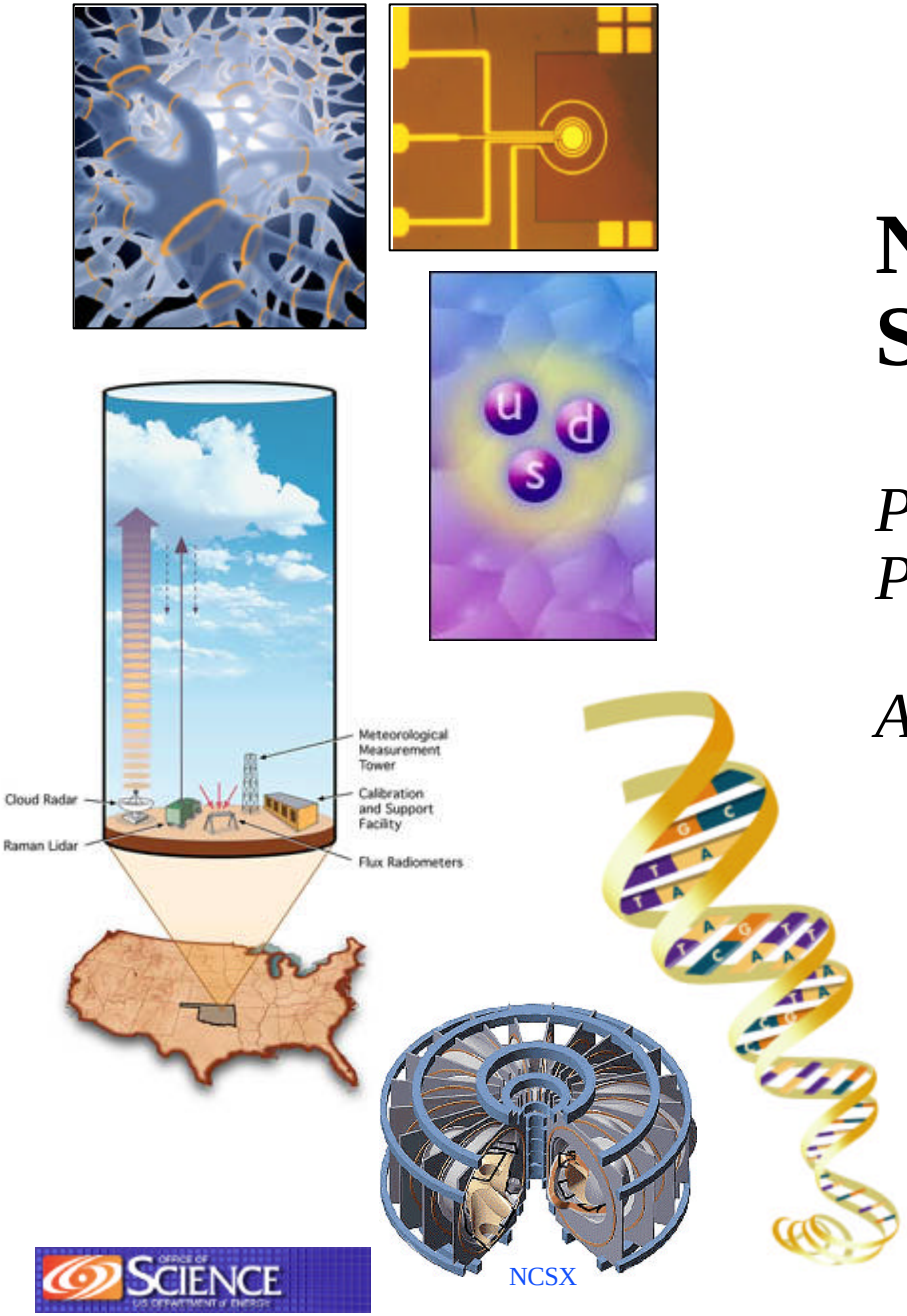
Ensuring Our Nation's Energy Security



News from the Office of Science

Presentation to the High Energy Physics Advisory Panel

August 5, 2002

Dr. James Decker
Principal Deputy Director
Office of Science

- **Re-structuring**
- **Future Directions for SC**
- **Status of FY 03 Budget**

SC Re-Structuring

- Supports the President's Agenda for Management Reform

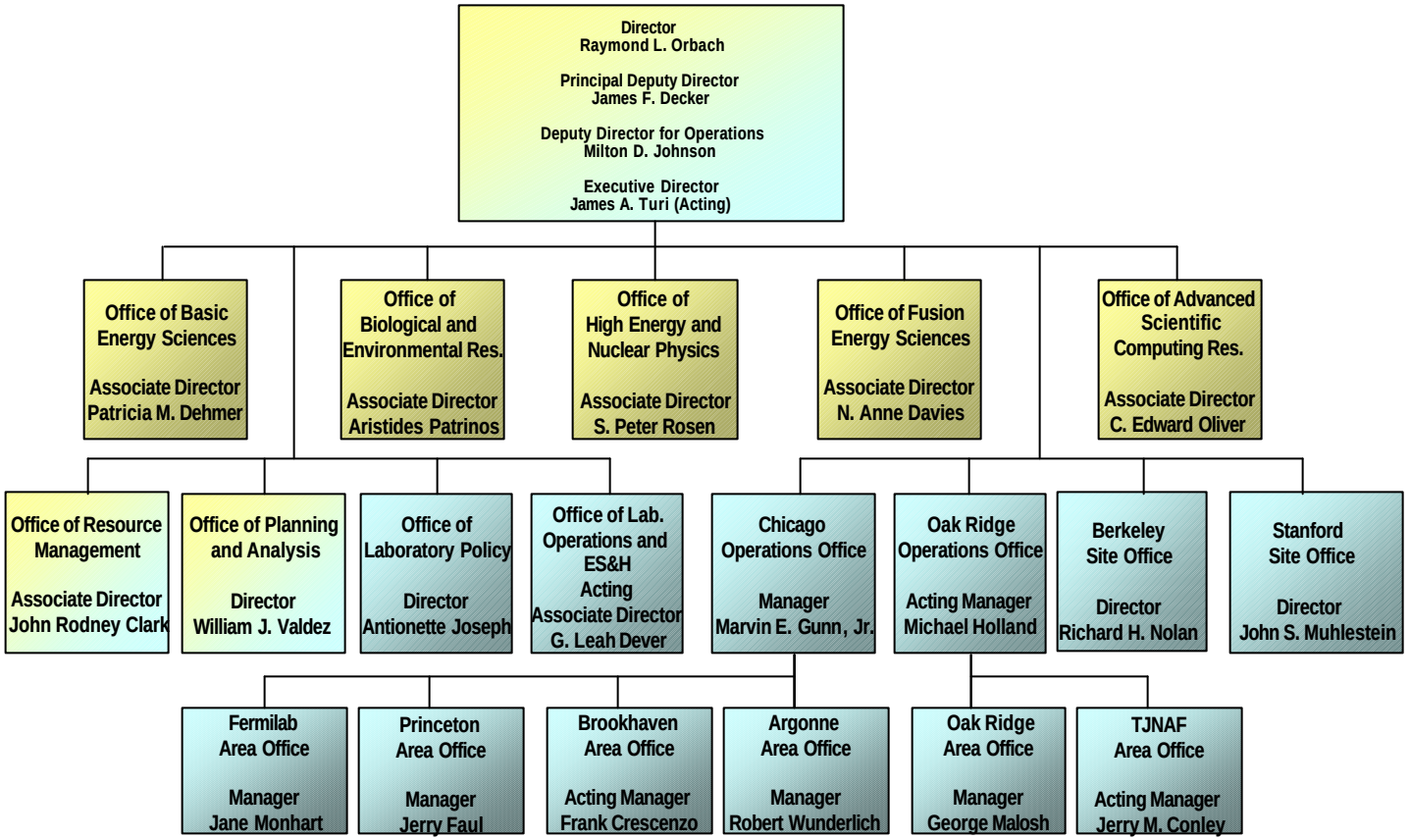
•Will streamline and integrate SC in both headquarters and field to utilize existing resources more effectively by:

- moving decision authority to the lowest responsible management level while holding decision makers accountable for results
- reducing layers of management
- streamlining decision-making processes
- clarifying lines of authority
- eliminating overlapping roles
- re-engineering management systems to eliminate inappropriate or redundant requirements.

The President's Management Reform Agenda is a mandate for change

- The President's Long Term Goals
  - Bureaucracies will become flatter and more responsive
  - Focus more on results; less on process
  - Organizations now burdened with overlapping functions, inefficiencies, and turf battles will function harmoniously
  - Strengthen and make the most of the knowledge, skills and abilities of our people

The "as is" condition is complex



Our "to be" concept is a streamlined and integrated Office of Science

Policy & Direction

Director

Office of Science

Programmatic Leadership

Operational Leadership

Implementation

Laboratory Site Offices

Office of Science Laboratory Contractors

Enterprise Support Centers

Support SC & Other DOE Customers

Objective: ***Make SC the benchmark among federal research organizations***

- Reduce management layering
- R2A2s* will focus and integrate the SC organization
- Ensure line accountability integrates operational excellence with program accomplishment
- Base operational requirements primarily on external standards and use external certifications to enhance performance-based management
- Simplify internal processes and employ an enterprise wide web-based management system
- Increase the productivity of the Federal workforce

Roles, Responsibilities, Accountabilities and Authorities

The project is phased

- **Phase 1: Planning & Communication**
  - Approve Project Plan
  - Approve Roles, Responsibilities, Accountabilities & Authorities
  - Inventory & Prioritize Management Processes for Reengineering
  - Map "As Is" and "to Be" Conditions
  - Approve Organizational Structure & Reporting Relationships
  - Assess Leadership and Make Critical Appointments
- **Phase 2: Implementation & Communication**
  - Activate the New Organizational Structure
    - Align Delegations of Authority With Approved R2a2s
    - Link Resources & Responsibilities (Minimize personnel moves)
  - Design & Commission Web-based Management System
  - Simplify Requirements & Reengineer Processes
- **Phase 3: Completion & Communication**
  - Optimize Organization & Resource Allocations
  - Transition to Full Operations

7/22/02 To 12/31/02

1/1/03 To 9/30/04

10/1/04 To 12/31/04

Re-structuring for Homeland Security

- The Administration is proposing to transfer to the Homeland Security Department (HSD) $20 million of Biological and Environmental Research program funds (DNA sequencing of pathogenic microbes, technology development to compare gene sequences, and computational tools and data bases); and $3 million of Advanced Scientific Computing Research program funds (applied mathematics and computer science research to achieve optimal efficiencies from large scale computing systems).

- NNSA will be transferring to HSD:
  - R&D to counter Chemical, Biological, Nuclear and Radiological Threats (~ $85 million)
  - NISAC—a LANL/Sandia consortium to analyze national infrastructure interdependencies (~ $20 million)
  - Programs to assess and detect illicit nuclear materials (~ $5 million)
  - Intelligence (~ $5 million)
  - Environmental Measurements Laboratory (~ $5 million)
  - Other (~ $5 million)

- DOE Labs will play an important role in performing R&D for the HSD.

SC Mission Re-affirmed

- **The Secretary provided on June 14, 2002 at Brookhaven National Laboratory his commitment to the Office of Science.**

> "Our mission here at DOE … is national security.
>
> And in my view, a serious commitment to national security demands a serious commitment to science, including basic research.
>
> This commitment strengthens our energy security, international competitiveness, economic growth and intellectual leadership. . . . "

Future Directions for SC

The Earth Simulator

- The Earth Simulator:
  - •Was developed as a Japanese government-funded project
  - •Was specifically designed to address a set of scientific questions
  - •Demonstrates record peak and sustained performance

- Peak performance is 40 Teraflops (TF), vs. 27.6 TF for **all** DOE supercomputers. The Earth Simulator:
  - is No. 1 on the Top 500 list (*www.top500.org*). Based on LINPACK benchmarks, it registered 35.9 TF, or 90% of peak
  - ran a benchmark global atmospheric simulation model at 13.4 TF on half of the machine - over 60% of peak
  - can support other disciplines such as fusion and geophysics as well as climate change.

- The Advanced Scientific Computing Advisory Committee recommends an initiative to regain the lead in scientific computing.

Occasional Papers

- support the Office of Science commitment to being at the forefront of major new discoveries.

- illustrate cutting edge science sponsored by the Office of Science and performed in universities, national laboratories, and the private sector.

- give direction to scientific areas which need further exploration

- Current papers, available at *www.science.doe.gov*, are:

Reasserting U.S. Leadership in Scientific Computation
Building a 21st Century Workforce
The Beauty of Nanoscale Science
Using Nature's Own Tool Kit to Clean up the Environment
Biotechnology for Energy Security
Bringing a Star to Earth
Dark Energy—the Mystery that Dominates the Universe
Scientific Foundations for Countering Terrorism

Status of the FY 03 Budget

House Appropriations, Energy and Water Development
($ in thousands)

Program	Recommendation	vs. FY '02	vs.'03 Budget request
HEP	724,990	+11,820	same
NP	382,370	+23,335	same
BER	504,215	-66,085	same
BES	1,019,600	+19,995	same
ASCR	174,625	+17,225	+5,000
FES	248,495	+1015	-8,815
Infrastructure	47,680	+10,550	+4,945
Workforce Development	5,460*	+1000*	same
Program Direction	134,310*	-22,749*	-9,082*
Safeguards & Security	48,127	4,978	+4,383
Energy Res. Analyses	1,020*	+25*	Same*
Technical Inf. Mgt (TIM)	7,770*	+25*	Same*
General Reduction	-18,639	-18,639	-18,639
Total Office of Science	3,271,233	-17,555	-22,208

* House Mark recommends ERA and TIM be funded in Program Direction, and sets Workforce Development as a new program.

Senate Appropriations, Energy and Water Development
($ in thousands)

Program	Recommendation	vs. FY '02	vs.'03 Budget request
HEP	729,980	+16,810	+4,990
NP	387,370	+28,335	+5,000
BER	531,215	+39,085	+27,000
BES	1,044,600	+44,995	+25,000
ASCR	169,625	+12,225	same
FES	259,310	+11,830	+2,000
Infrastructure	42,735	+5,605	same
Workforce Development	5,460*	+1,000*	same*
Program Direction	134,837	-17,638	-4,642
Safeguards & Security	43,744	+595	same
Energy Res. Analyses	1,020	+25	same
Technical Inf Mgt (TIM)	6,925	-1,124	-1,428
General Reduction	-14,980	-14,980	-14,980
Total Office of Science	3,336,381	+47,593	+42,940

.*Workforce Development Funded in Program Direction

External Regulation

•The FY2003 Conference Report accompanying the Energy and Water Appropriations Bill directs DOE to prepare an implementation plan for transitioning to external regulation at DOE's non-defense science laboratories.

DOE is to assume that the NRC would have regulatory responsibility for nuclear safety, and OSHA would assume regulatory responsibility for worker safety.

Underlying assumption is that external regulation will result in the same level of safety and performance for fewer resources expended. It could also result in both external and internal regulation.

•The Conference Report requests

by September 30, 2003 a detailed estimate on the cost of bringing all SC laboratories under external regulation.

by May 31, 2003, NRC and OSHA compliance audits of, and cost estimates for, 4 SC Laboratories.